

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER R5-2013-0704
FOR

RECOLOGY YUBA SUTTER
RECOLOGY YUBA SUTTER LANDFILL, WASTE MANAGEMENT UNIT LF-1
YUBA COUNTY

This Order is issued to Recology Yuba Sutter (hereafter, Discharger) based on provisions of California Water Code section 13304, which authorizes the California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board or Board) to issue a Cleanup and Abatement Order (CAO), and Water Code section 13267, which authorizes the Board to require the submittal of technical reports.

The Assistant Executive Officer of the Central Valley Water Board finds, with respect to the Discharger's acts, or failure to act, the following:

1. The Discharger owns and operates a closed municipal solid waste Class III landfill located at 3001 N. Levee Road, Marysville in Yuba County. For the purposes of this Order, the term "Landfill" refers to closed waste management units (WMUs) LF-1, LF-2, and LF-3.
2. This CAO focuses on post-closure use of WMU LF1 and post-closure maintenance deficiencies that have led to storm water bench mark exceedences, landfill gas (LFG) generation, migration of LFG into the groundwater, and groundwater impacts. As discussed in the Findings below, several Notices of Violation (NOVs) have been issued requiring corrective action measures to address the deficiencies. This Order requires the Discharger to install additional corrective action measures, conduct upgrades to the cover of WMU LF-1, and prepare a work plan describing actions to be taken to protect the cover of WMU LF-1.
3. Waste Discharge Requirements (WDRs) Order R5-2003-0093 was adopted 6 June 2003. The WDRs regulate post-closure maintenance of the closed WMUs and require corrective actions relating to a release of LFG and groundwater degradation.
4. Several active operations are conducted on the cover of WMU LF-1 including storage and processing of green waste, green waste composting, a materials recovery facility (MRF), a vehicle maintenance yard, and storage of white goods. The compost operation covers approximately 16 acres and is permitted by the County to accept a maximum of 400 tons per day of green waste for processing and with a capacity of 40,000 tons of materials on-site at any one time.
5. The Central Valley Water Board formerly regulated green waste composting facilities under Resolution No. 96-031 *Conditional Waiver of Waste Discharge Requirements for Composting Operations*. Consistent with SB 390, all waivers expired on 1 January 2003. Since that time, the Board has not formally regulated this facility's composting facility however, Board staff has included the facility's composting operations in its site inspections. After the Discharger completes certain actions required by this CAO, Water

Board staff will prepare updated WDRs which will include requirements for the compost facility.

6. The facility is also regulated under the State Water Resources Control Board's Water Quality Order No. 97-03-DWQ, the Statewide Industrial Storm Water General Permit (General Permit). General Permit requirements are based, in part, on the Standard Industrial Classification (SIC) Code for the industrial activity. The Discharger has determined the activities conducted at the facility that are subject to the General Permit include SIC Codes 4953-refuse, 5093-scrap metal, and 4212-trucking. This CAO requires that the Discharger file the appropriate forms to include the compost operation (SIC 2875) under the General Permit and to update its Storm Water Pollution Prevention Plan (SWPPP) accordingly.

STORM WATER AREAS OF CONCERN

7. The facility was issued letters requiring modifications to the Discharger's storm water Best Management Practices (BMPs) to address bench mark exceedences reported in the Discharger's 2006/2007 and 2009/2010 annual reports. In response, the Discharger made several improvements including: installing inlet filters in nine drain inlets, upgrading Material Bunker #1, installing a wood chip sediment barrier down gradient of the public green waste receiving area and wood chipping area, installing river rock sediment filter, installing hydrocarbon absorbent packets in drain inlets, increasing the frequency of site inspections, and cleaning of all 40 drain inlets.
8. Storm water flows off the facility at multiple locations, all of which are directed to a pond located outside of the landfill boundary, but on the Discharger's property. The pond is referred to as the "Big Pond" and is within the 100-year flood plain of the Yuba River. Based on the location, groundwater elevations, and wetlands characteristics, Board staff preliminarily has determined that the Big Pond is a jurisdictional water of the United States (US). This determination affects the location at which samples must be collected under the Storm Water Permit. This CAO allows the Discharger an opportunity to show that the Big Pond should not be considered a jurisdictional water of the US.
9. Due to the number of operations being conducted on top of the cover of WMU LF-1, storm water flow from numerous operations comes prior to discharge to the Big Pond. Board staff is concerned about the discharge and drainage from all LF-1 operations and whether appropriate sampling is being conducted per the required SIC Codes.
10. During a site inspection on 16 May 2013, Board staff noted several areas of concern. Standing water was observed in storm drains beneath the asphalt apron of the MRF. Drainage of storm water beneath the MRF appeared to be impeded and no inlet filters were observed. Material Bunker #1 was overflowing and had standing water around the bunker. It was indiscernible whether upgrades to Bunker #1 were providing a higher level of storm water protection. Hydrocarbon absorbent packets were not observed in drain

inlets in the metal yard's storm drain system, even though the Discharger had stated that they would be installed in response to the benchmark exceedences.

11. During the wet season, leachate generated at the compost operation is allowed to comeingle with storm water, creating "contact storm water". The discharge of "contact storm water" is a violation of the Industrial Storm Water Permit. The Discharger has constructed a wood chip berm along the northern boundary of the compost operation which drains via a single 6-inch diameter pipe installed in a low area. However, a wood chip berm at this location has the potential of allowing storm water to pond on the landfill cover, in violation of the WDRs. In the past, Board staff has noted that the ground surface of the compost area has been rutted and uneven, which does not provide positive drainage. During the May 2013 inspection, staff observed several locations along the wood chip berm along the northern boundary of the compost operation where contact storm water had ponded.

RELEASE FROM WMU LF-1 AND CORRECTIVE ACTION

12. According to the WDRs, WMU LF-1 covers about 42 acres. Municipal solid wastes and agricultural wastes were placed in this unlined unit from about 1967 through 1984, after which it was closed in accordance with the regulations that existed at that time. Most of the unit has since been covered with building structures, paved parking, a white goods recycling area, a green waste area, and a compost area. The unit does not contain a bottom liner or a leachate collection and recovery system (LCRS). The northern boundary of LF-1 contains a line of LFG extraction wells.
13. In 1993, the Discharger conducted evaluation monitoring in response to the detection of volatile organic compounds (VOCs) and elevated concentrations of general water quality parameters in wells MW-1, MW-2, MW-3, and MW-10. To address LFG detected in perimeter probes adjacent to unit LF-1, 22 LFG extraction wells were installed in 1998 along the northern boundary of the unit.
14. Since 1993, groundwater monitoring wells associated with unit LF-1 continue to have detections of VOCs. The Discharger has conducted various actions to address the VOC detections, including constructing final closure covers on LF-2 and LF-3, installing LFG extraction wells in LF-2 and LF-3, and conducting normal maintenance and upgrades to those operations conducted on LF-1. Although the Discharger has performed measures to impede the generation of LFG and groundwater impacts, VOCs continue to exceed concentration limits.
15. On 14 April 2011, Board staff issued a Notice of Violation (NOV) for continued detections of volatile organic compounds (VOCs) in corrective action wells MW-1, MW-2, MW-3, MW-4, and MW-10. In addition to the VOCs, bicarbonate, total dissolved solids, and chloride were also detected above their concentration limits. Based on these detections, it was determined that a release from WMU LF-1 had occurred and was affecting the underlying unsaturated and saturated zones.

16. In response to the April 2011 NOV, the Discharger submitted a *Corrective Action Effectiveness Report* which indicated that landfill gas from LF-1 was a likely source of groundwater impacts. The report stated that "the data indicate that infiltration into the landfill during wetter years could be the cause of increased leachate or increased landfill gas influence on groundwater." The report indicated that cover improvements should be considered.
17. On 12 August 2011, Board staff issued a NOV for violation of WDR Facility Specification B.12, which states: "*Closed landfill units shall be maintained to promote runoff and to prevent ponding.*" During a June 2011 site inspection, staff observed severe ponding and poor drainage conditions LF-1, including settlement of the landfill cover. Staff requested a work plan to correct the drainage issues. The Discharger submitted the work plan dated 14 September 2011.
18. On 22 November 2011, Board staff conducted a follow up inspection to the June 2011 inspection. During this visit, staff verified that the Discharger had conducted grading of the southern portion of LF-1 and installed storm water controls over portions of LF-1. Concrete rubble and debris boxes had been moved. However, this was a dry weather site inspection and performance of the storm water controls could not be determined at the time of the inspection.
19. In a letter dated 30 November 2011, the Local Enforcement Agency (LEA) requested the Discharger prepare a work plan to install additional landfill gas probes to monitor LFG migrating adjacent to the eastern and southern boundaries of WMU LF-1 and LF-2.
20. In a letter dated 6 December 2011, staff concluded that the current corrective action program was not sufficient to comply with requirements of Title 27, Section 20430, and therefore required that the Discharger submit an updated *Engineering Feasibility Study* to address deficiencies in the corrective action program. In addition, staff requested a work plan be submitted to install one additional groundwater monitoring well to enhance the detection/corrective action monitoring programs. This work plan was submitted in December 2011 and the well MW-15 was installed April 2012.
21. In a letter dated 29 December 2011, the Discharger submitted a work plan to install four additional perimeter LFG probes (GP-12 through GP-15) which are adjacent to LF-1 and LF-2. In a letter dated 26 January 2012, Board staff responded to the work plan. Staff recommended the gas probes be installed deeper as required by Title 27, Section 20921(a). This request was based on the fact that LFG released from WMU LF-1 was affecting groundwater as evidenced by continued VOC detections in groundwater samples. The Discharger concurred with staff's recommendation to install the gas probes deeper in a revised work plan dated 8 March 2012.
22. On 28 March 2012, Board staff issued a NOV for continued detections of VOCs in groundwater monitoring wells MW-1 through MW-4, and MW-10. In addition to VOCs, other the concentrations of other analytes including specific conductance, TDS, chloride,

and several metals exceeded their concentration limits. Staff recommended the EFS Report provide an evaluation of the LFG extraction system and expansion of the system into the southern portion of WMU LF-1.

REPORT OF WASTE DISCHARGE AND CORRECTIVE ACTION

23. In a letter dated 17 May 2012, Board staff requested an updated *Report of Waste Discharge* to revise the WDRs to accurately reflect current operations at the site. Staff requested the Discharger provide detailed information on the composting facility and its potential impacts to surface water and groundwater.
24. The Discharger submitted the required *Engineering Feasibility Study (EFS)* and *Amended Report of Waste Discharge Report* dated 29 June 2012. Staff reviewed the reports and responded in a letter dated 27 August 2012. The EFS described LFG as the likely source of the unsaturated zone and saturated zone impacts identified during previous investigations and ongoing monitoring. LFG was also identified in the newly installed perimeter gas probe GP-14. As part of the EFS, the Discharger voluntarily installed nine shallow temporary probes to further delineate the extent of LFG within LF-1. Methane was detected in five of the probes, indicating LFG is being generated within LF-1 and is migrating uncontrolled toward the sites southern edge of unit LF-1. Because the Discharger believes that LFG is the likely source of impacts to groundwater, the Discharger evaluated multiple corrective action measures and proposed to expand the LFG system into LF-1. In addition to expansion of the LFG system, the Discharger proposed to evaluate subsurface storm water and sewer pipelines for leaks. Staff approved these corrective action measures and requested a Corrective Action Work Plan.
25. In a letter dated 26 September 2012, Board staff requested an Amended Report of Waste Discharge to further describe the composting operation. Staff requested the Discharger to address the composting operation and the use of BPTC that will meet the requirements of Title 27, Sections 20950 and 21090, and State Water Board Resolution No. 68-16.
26. The Local Enforcement Agency (LEA) conducted a site inspection on 27 September 2012 and noted gas monitoring and control violations. The LEA observed damage to offsite perimeter gas probe GP-14 as a result of construction work performed for storm water drainage. The LEA was unable to monitor the probe on the day of inspection. The LEA returned on 16 October 2012 to monitor the probe and found the probe had not been repaired. The Discharger was required to submit a report of repairs and functionality of the probe by 9 November 2012. Gas probe GP-14 was repaired on 7 November 2012. The LEA was able to monitor the probe on 31 December 2012 and found that GP-14 contained methane up to 20% by volume in the shallow probe and 11.5% in the deep probe.
27. On 31 October 2012 the Discharger submitted a work plan to remediate LFG migrating outside the boundaries of the landfill. The work plan focused on collecting LFG in the vicinity of GP-14. The Discharger proposed to mitigate the migration of LFG using either a solar vent flare or an induced draft utility flare. In a meeting on 18 October 2012 between staff and the Discharger it was discussed that LFG was detected in multiple locations

across LF-1 and not just at GP-14. In a letter dated 3 December 2012 staff requested that corrective action address LFG throughout LF-1 and for the Discharger to prepare an addendum to the work plan by 31 January 2013.

28. In a letter report dated 15 November 2012, the Discharger submitted a first phase *Evaluation of the Integrity of the Subsurface Pipelines and Paved Surfaces at LF-1*. The intent of the survey was to identify any broken or leaking pipes that could allow water to infiltrate into the waste mass of LF-1. The evaluation of the pipelines and paved surfaces was conducted over two phases and was completed by the Discharger on 29 January 2013. The pipeline survey indicated that multiple storm water pipes and sewers lines installed within the cover of LF-1 were broken or leaking, and susceptible to settlement of the underlying waste mass. The report also identified numerous areas of the LF-1 cover that had settled, allowing for water to pond and infiltrate into the waste mass. Monthly status reports submitted by the Discharger indicate that repairs to the storm water and sewer pipelines along with areas of settlement within the cover of LF-1 will be conducted during the 2013 construction season.
29. In preparation of revising the WDRs, Board staff conducted an inspection of the facility on 30 November 2012. During this inspection multiple water quality issues were identified as a result of ongoing operations on top of the final cover of WMU LF-1, including the composting operation. Staff observed ponding of storm water on the earthen cover of LF-1, ponding of storm water on paved surfaces in the vicinity of the MRF, sediment laden runoff from the composting area discharging to the Big Pond, tire marks and ruts in the compost on the compost pad, and leachate formation in the compost area. Staff collected samples of storm water discharging from the composting operation and determined through laboratory analysis that these discharges could affect beneficial uses of surface water and groundwater.
30. In a letter report dated 31 January 2013, the Discharger submitted the Addendum to the Work Plan requested by staff in Finding 25 above. The addendum proposed to expand the LFG system into LF-1 with five LFG extraction wells. The wells would be installed approximately 100 feet inside the eastern site boundary of LF-1 and are being located to address LFG in the vicinity of GP-14 and the site boundary. The installation and operation of the system would be completed by 30 September 2013. Staff approved the proposed scope of work and requested design details in a letter dated 12 February 2013.
31. The Discharger appears to adequately comply with the Title 27 regulations regarding control of landfill gas at the perimeter of the unit. Compliance with these regulations is overseen by CalRecycle and/or the Local Enforcement Agency.
32. As stated above, landfill gas appears to be controlled at the boundary of LF-1. However, the Discharger contends that landfill gas being generated in LF-1 is the source of groundwater contamination. Therefore, as described in Finding 30, the Discharger must take additional steps to remove landfill gas from within unit LF-1 to prevent groundwater impacts. To date, the Discharger has verified the presence of landfill gas within portions of LF-1 using temporary vapor probes, which only allow for a one-time sampling of the landfill

gas within the unit. They are not designed for long-term monitoring. This Order requires the Discharger to (a) install a new gas monitoring network for LF-1, (b) after installation of the five LFG extraction wells described in Finding 30, evaluate whether or not the existing LFG extraction system removes sufficient gas to prevent further groundwater degradation, and (c) if not, propose either an expansion of the LFG extraction system or active groundwater remediation.

33. In a report dated 15 February 2013, the Discharger submitted an *Amendment to Report of Waste Discharge*. This Amendment provided additional information focused on the composting area. The Discharger had conducted a "Pad Study" within the composting area to evaluate if the operations pad meets their consultant's 2001 recommended specifications. The soil investigation included 13 test pits and 10 hand auger borings. Test pits were excavated to various depths between 1.5 to 3 feet below surface grade to evaluate pad thickness, soil density, and moisture content. The report recommended adding aggregate base material to areas lacking a minimum of 6-inches of base material (i.e., rebuilding the pad to the consultant's 2001 specifications), conducting periodic verification of pad thickness, and periodically re-grading the operations pad for positive drainage. The report did not discuss a groundwater seep identified in test pit 11 or refuse encountered in four test pits at depths between one and three feet below grade. It is noted that test pit 11 is outside the compost pad, and is located in near a drainage between the compost area and the MRF.
34. Some of the groundwater monitoring wells are over 30 years old, and no longer meet the performance standards outlined in Section 20415(b)(4)(B) of Title 27 which states: "*The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative samples*". A review of the well construction logs for MW1 and MW2 finds that these wells were constructed with hand cut screens and that the screen interval does not intersect the water table. This Order requires the Discharger to install new wells adjacent to MW1 and MW2, with factory uniform screen slot size and installed at an elevation that continuously intersects the water table.

BASIS FOR CLEANUP AND ABATEMENT ORDER

35. The Discharger conducts multiple operations on top of the closure cover of WMU LF-1. Although it is unusual for a Discharger to conduct operations on top of a closed landfill, it is not disallowed by the regulations. However, the Discharger must adjust its operations and complete additional maintenance activities such that the cap and associated closure structures are maintained in accordance with the regulations. As described above, the cap has settled over time. This settlement has created low spots where storm water ponds on the cover, has cracked paved surfaces allowing infiltration of storm water into the underlying waste mass, and has broken storm water pipes and sewer lines also allowing storm water to infiltrate in to the underlying waste mass. As a result of infiltration of water into the waste mass, LFG is generated and has impacted the underlying groundwater. Furthermore, current composting operations generate leachate that is not properly

controlled, drained, or collected, which then mixes with storm water from the site, resulting in an unpermitted discharge of waste from the facility.

36. As a result of infiltration of ponded storm water on top of the existing cover of LF-1, settlement and breakage of subsurface piping, and lack of proper drainage of storm water, the underlying waste mass within WMU LF-1 remains wet and thus generates LFG. LFG is migrating outside of the WMU and has impacted the unsaturated zone and shallow groundwater beneath the landfill. These impacts are seen in soil gas probe GP-14 and groundwater wells MW-1, MW-2, MW-3, , MW-10, , , and MW-15. Gas probe GP-14 has measured upwards of 20% methane and both the shallow and deep probes exceed the 5% methane regulatory limit. Since 1993, the groundwater wells have contained multiple volatile organic compounds (VOCs) and inorganic exceedences that are evidence of a release from the landfill WMUs.
37. This Order requires the Discharger to address the issues that have resulted in the generation of LFG and the impacts to groundwater, to prevent the discharge of compost leachate, and to implement appropriate and timely inspections and maintenance of the cover.

REGULATORY CONSIDERATIONS

38. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board. These requirements implement the Basin Plan.
39. Surface water drainage is to the southwest into the Yuba River, which is a tributary to the Feather River, which is a tributary to the Sacramento River, which flows into the Sacramento-San Joaquin Delta. The beneficial uses of the Sacramento River, as specified in the Basin Plan, are municipal and domestic supply, agricultural irrigation supply; stock watering, hydroelectric power generation, recreation; freshwater habitat, fish migration and spawning; wildlife habitats; groundwater recharge; fresh water replenishment; preservation of rare and endangered species; and aesthetic enjoyment.
40. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
41. Title 27, section 21190 (a – g) Postclosure Land Use, states in relevant part: *All proposed postclosure land uses, other than non-irrigated open space, on sites implementing closure or on closed sites shall be submitted to the EA, RWQCB, local air district and local land use agency. The EA shall review and approve proposed postclosure land uses if the project involves structures within 1,000 feet of the disposal area, structures on top of waste, modification of the low permeability layer, or irrigation over waste.*
42. Title 27, section 20425 (3) Coordinated Landfill Gas Control states, in relevant part: *For landfills at which the information submitted under ¶(d) indicates that the release likely*

involves landfill gas, the RWQCB shall notify and shall coordinate, as appropriate, with the EA and (as appropriate) the CIWMB (CalRecycle) in developing those aspects of the corrective action program involving the design, installation, and operation of the landfill-gas control and monitoring systems at the Unit, such that the resulting gas control program satisfies the needs of all agencies concerned.

43. Title 27, section 20365(a) SWRCB- Precipitation and Drainage Controls states, in part: *Units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions specified in Table 4.1...* Section 20365(c) contains specific performance standards for the design, construction, and maintenance of diversion and drainage facilities. Section 20365(f) requires that landfill covers be graded to divert precipitation, prevent ponding, and resist erosion.
44. Water Code section 13304(a) states, in relevant part: *Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.*
45. Water Code section 13267(b) states, in relevant part: *In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.*
46. The technical reports required by this CAO are necessary to ensure compliance with this CAO and WDRs Order R5-2003-0093, and to ensure the protection of water quality. The Discharger owns and operates the facility that discharges waste subject to this CAO and WDRs Order R5-2003-0093.
47. The issuance of this Order is an enforcement action taken by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) pursuant to California Code of Regulations, title 14, section 15321(a)(2).

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13304 and 13267, Recology Yuba Sutter shall cleanup and abate the Recology Yuba Sutter Landfill in accordance with the scope and schedule set forth below, in order to comply with WDRs Order R5-2003-0093, or its subsequent Order, and the State Water Board General Storm Water Permit.

1. **By 1 September 2013**, the Discharger shall identify the composting operation by SIC Code 2875 on the facility information page in the 2012/2013 Storm Water Annual Report, and shall, beginning with the 2013/2014 reporting period include the appropriate compost analytes in the storm water sampling events and the facility's storm water Monitoring Program and Reporting Requirements (MPRR).
2. **By 30 October 2013**, the Discharger shall prepare and submit an updated Storm Water Pollution Prevention Plan (SWPPP) and MPRR in accordance with the Industrial Storm Water General Permit.
 - a. The SWPPP/MPRR shall identify all storm water drainages and discharge points associated with the facility and compliance sampling locations upstream of the Big Pond. If the Discharger believes that the Big Pond should not be considered a jurisdictional water of the US, then the SWPPP shall contain a detailed evaluation of the surface water and groundwater hydrology and surrounding wetlands characteristics, and the rationale for why the Big Pond should not be considered a jurisdictional water of the US.
 - b. The SWPPP shall also identify how the Discharger shall temporarily separate contact storm water (leachate) generated at the compost and green waste areas from facility storm water, where the leachate will be collected for proper disposal, and how it will be disposed of. The temporary collection system shall be in place prior to the winter of 2013/2014.
3. **By 31 October 2013**, the Discharger shall submit a report documenting the (a) installation of five LFG extraction wells, (b) repairs to storm water drains and sewer pipelines identified in the 15 November 2012 Report, and (c) a proposed schedule for routine inspections and maintenance of the subsurface piping and storm water drains within LF-1. The report shall provide as-built drawings showing how repairs were completed and describe to what standard repairs were made.
4. **Beginning with the month of October 2013**, the Discharger shall monitor the LFG system as described on Attachment A of this Order. Monitoring reports shall be submitted by the 1st day of the second month following sampling (i.e., the October 2013 monitoring report is due by 1 December 2013).
5. **By 31 October 2013**, the Discharger shall submit a *Compost Area Work Plan* that describes how the green waste (chip/grind) and composting activities will be modified and/or designed, constructed, operated, and maintained to protect the cover of LF-1. The

work plan shall include:

- a. A description of how the composting activities will be completely separated from the closure cover of LF-1 through the modification or installation of a “compost pad”. The Discharger shall not rely on the existing closure cover to impede percolation of liquids into the underlying waste. The work plan shall:
 - (1) Evaluate the installation of different types of a low permeability (i.e. less than 1×10^{-6} cm/sec) barrier such as asphalt or concrete to create a compost pad with the separation needed to protect the cover from degradation. If the Discharger desires, it may also evaluate an engineered compacted soil pad and compare it¹ to the low permeability barriers;
 - (2) Identify and justify the type of compost pad surface that will be installed or be upgraded, and clearly show, through engineering calculations, how this surface will be graded to drain and will be designed, constructed, and operated to prevent the infiltration of liquids, to the maximum extent possible, into the closure cover of LF-1.
 - (3) Contain design specifications for the compost pad, including dimensions, slope, thickness, drainage patterns, and location.
- b. A description of how the compost pad shall be graded to drain all leachate and excess process water to a central collection point(s) and designed to prevent, to the maximum extent possible, liquids from infiltrating into the closure cover of LF-1. Precipitation and drainage controls shall be constructed of low permeability materials to contain and convey liquids generated from this operation to a dedicated containment system, and shall meet the standards of Title 27, Section 20365 (a) and (c).
- c. A description of how the compost pad and surrounding area shall be marked such that Board staff and the Discharger can visually determine the extent of the compost pad, can easily determine whether composting activities are taking place on or off the compost pad, and can inspect the pad to determine if conditions such as cracking, checking, dipping, etc. indicate that maintenance must be performed. The markings shall include monuments or other devices to determine whether composting operations have resulted in a decrease in the thickness of the pad.
- d. A proposed schedule for construction, not to exceed beyond **1 October 2014**.
- e. A proposed monitoring plan, including sample collection, to determine whether or not the compost operations are separated from (i.e., not impacting) the closure cover.

¹ The Discharger shall describe how the soil pad is “engineered” and explain how it will provide equivalent water quality protection to the low permeability barriers which have been evaluated.

- f. A proposed Operations and Maintenance Manual which shall describe:
- (1) How day-to-day operations on the compost pad will be conducted to prevent ponding of liquids to the maximum extent possible, maintain the Board-approved thickness of the compost pad material, and prevent compost operations from extending outside the compost pad;
 - (2) The type and frequency of inspections, both during the dry season and after each major storm event during the wet season;
 - (3) The type and frequency of maintenance actions, both in response to inspections and on a routine basis, and
 - (4) Documentation that will be submitted to the Board.
6. By **31 January 2014**, the Discharger shall submit a *Southern Area Work Plan* that describes how activities conducted in the Southern Area of LF-1 (i.e., vehicle maintenance, administration, white good storage, and materials recovery facility) shall be modified and/or constructed, operated, and maintained to protect the cover of LF-1. The work plan shall include a description of how the asphalt drive paths and graveled storage areas shall be inspected, surveyed, prioritized, repaired, and maintained to comply with the precipitation and drainage controls requirements of Title 27, Section 20365. Repairs shall be made with material which has the same or similar permeability as the cover material. Inspections and maintenance shall occur during the dry season as well as after each major storm event in the wet season. The work plan shall also describe how diversion and drainage facilities will be inspected and upgraded to meet the requirements of Section 20365(c). The work plan shall include a proposed timeline and a long-term Operation and Maintenance Plan.
7. By **30 November 2013**, the Discharger shall submit a *Groundwater Monitoring Network Update Work Plan* that proposes the installation of two new detection monitoring wells. The work plan shall include the information listed in Attachment B of this Order. Each well shall be designed, installed and developed in compliance with all applicable local, state and federal regulations. The first well shall be placed adjacent to MW1, while the second well shall be placed adjacent to MW2. The work plan shall propose the elevation for the top and bottom of the screen interval based on historical water level data from MW1 and MW2. The newly installed wells shall be sampled on the same schedule as monitoring wells MW1 and MW2.
8. By **30 November 2013**, the Discharger shall submit a *Landfill Gas Monitoring Work Plan* that proposes the installation of a corrective action monitoring system throughout LF-1 and the underlying vadose zone. The monitoring system shall be designed to evaluate the effectiveness of the current landfill gas extraction system and whether additional gas extraction points are necessary to prevent groundwater impacts. The work plan shall contain the information listed in Attachment B and shall provide a rationale for the proposed number of probes and their placement. Once installed, the probes shall be

added to the landfill gas monitoring program listed in Attachment A.

9. By **1 February 2014**, the Discharger shall submit a *Compost Area Leachate Collection Work Plan*. The work plan shall describe how contact storm water (leachate) generated at the compost (chip/grind) and green waste areas will be managed. In particular, the work plan shall describe:
 - a. The separation of leachate from facility storm water, and how the leachate will be collected and directed to containment and conveyance systems which are designed, constructed, operated, and maintained so that the leachate is separated, to the maximum extent possible, from the underlying closure cover of LF-1. These conveyance systems shall be made of a low permeability material such as asphalt, concrete, engineered compacted fill, or similar material and shall not rely on the properties of the existing closure cover to further impede percolation of liquids into the underlying waste mass. The diversion and drainage structures shall meet the standards of Title 27, Section 20365 (a) and (c).
 - b. The type of containment system in which the leachate shall be stored. Leachate may be discharged to an above ground tank system or to surface impoundments (ponds) constructed with at least a single liner. The work plan shall include design specifications for the tanks or pond/liner, and shall propose monitoring of the unsaturated zone beneath the tanks or pond. Pond(s) shall not be constructed over waste or on top of a WMU, unless approved by the Board through revised WDRs. The work plan shall include a water balance to justify the size of the tanks or ponds. The minimum pond volume shall meet the capacity specifications of Table 4.1 of Title 27.
 - c. The disposal of leachate in the containment system so that the tanks/ponds have adequate storage capacity at the beginning of each winter.
 - d. A construction schedule such that the conveyance and containment systems are installed and operational by **1 October 2014**.
10. By **30 March 2014**, or within 120 days of approval of the work plans listed in Items 7 and 8 (whichever is later), the Discharger shall submit a *Groundwater and Gas Monitoring Well Installation Report*. The report shall show that the wells and probes were installed in accordance with the approved work plans, and shall also contain the information listed in Attachment C to this Order.
11. By **30 May 2014**, the Discharger shall submit a revised post-closure maintenance plan to implement post-closure maintenance for each landfill unit, including all structures on each unit. In addition, the Discharger shall submit an updated cost estimate for initiating and maintaining assurances of financial responsibility for post-closure maintenance and monitoring. The post closure maintenance plan shall meet the requirements of Title 27, section 21769(b), and the updated cost estimate may include a cost estimate multiplier of 15 years (as approved by CalRecycle in its 28 March 2013 letter to the Discharger).

12. By **30 May 2014**, the Discharger shall submit an updated cost estimate for initiating and maintaining assurances of financial responsibility for completing corrective actions of all known or reasonably foreseeable releases. The updated cost estimate must consider the future costs to cleanup groundwater or surface waters from contaminants that may have impacted beneficial uses from any of the historical landfilling operations at the facility as well as activities conducted on top of the units, including composting. If CalRecycle determines that the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.
13. By **1 December 2014**, the Discharger shall submit a *Compost Area Improvement Report* describing the work completed per the work plans required by Items 5 and 9, above.
14. By **30 December 2014**, the Discharger shall submit a *Landfill Gas Extraction Evaluation Report* that evaluates the effectiveness of the LFG extraction system throughout LF-1 and in the underlying vadose zone in regard to removing sufficient LFG to prevent further groundwater degradation. If the current LFG extraction system is not clearly capturing the landfill gas throughout LF-1, or if the concentration of groundwater contaminants (i.e., VOCs and inorganics) are increasing in the groundwater monitoring wells, then the Report shall either propose an expansion of the LFG extraction system or active groundwater remediation.
15. **Beginning with the fourth quarter 2013**, the Discharger shall submit quarterly progress reports describing the work completed to date to comply with each of the above requirements, as well as what work will be conducted in the next quarter. The Quarterly Progress Reports shall be submitted by the **30th day of the month following the end of the quarter** (e.g. by 30 April, 30 July, 30 October, and 30 January).
16. In addition to the above, the Discharger shall comply with WDRs Order R5-2003-0093 and all applicable provisions of the Water Code that are not specifically referred to in this Order.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed by the registered professional.

Any person signing a document submitted under this Order shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

If the Discharger is unable to perform any activity or submit any document in compliance with the schedule set forth herein, or in compliance with any work schedule submitted pursuant to this Order and approved by the Assistant Executive Officer, the Discharger may request, in writing, an extension of the time specified. The extension request shall include justification for the delay. Any extension request shall be submitted as soon as a delay is recognized and prior to the compliance date. An extension may be granted by revision of this Order or by a letter from the Assistant Executive Officer.

If the Discharger fails to comply with the provisions of this Order, the Assistant Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability. Failure to comply with this Order may result in the assessment of administrative civil liability up to \$10,000 per violation per day, pursuant to the Water Code sections 13268, 13350, and/or 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

This Order is effective upon the date of signature.

Original signed by

Kenneth D. Landau, Assistant Executive Officer

29 August 2013

(Date)

TAD/HDH/WSW: 28August13

Attachments:

A: Landfill Gas Monitoring Program

B: Monitoring Well and Landfill Gas Well Installation Work Plan and Groundwater SAP

C: Monitoring Well and Landfill Gas Well Installation Report

**ATTACHMENT A
 LANDFILL GAS (LFG) MONITORING PROGRAM**

Parameter	Units	Frequency
LFG Extraction Well Field		
Gas concentrations at each well		
Methane	% by volume	Monthly
Carbon Dioxide ¹	% by volume	Monthly
Oxygen ¹	% by volume	Monthly
Remainder gas ¹	% by volume	Monthly
Gas Temperature at each well	°F	Monthly
Gas Pressure at each well		
Initial static pressure in wellhead	inches H ₂ O	Monthly
Adjusted static pressure in wellhead	inches H ₂ O	Monthly
Flare Station		
Temperature into LFG Flare	°F	Monthly
Pressure into the LFG Flare	inches H ₂ O	Monthly
LFG Flow rate into the Flare	CFM	Monthly
Total halogenated VOCs by USEPA Method TO-15	µg/cm	Semi-annually
Perimeter LFG Migration Monitoring Probes GP-1 through GP-15, As Identified in the WDR and MRP		
Gas Concentration		
Methane	% by volume	Quarterly
Carbon Dioxide ¹	% by volume	Quarterly
Oxygen ¹	% by volume	Quarterly
Remainder gas ¹	% by volume	Quarterly
Probe Pressure	inches H ₂ O	Quarterly
All Landfill Gas Corrective Action Monitoring Points in LF-1:		
Gas Concentration		
Methane	% by volume	Quarterly
Carbon Dioxide ¹	% by volume	Quarterly
Oxygen ¹	% by volume	Quarterly
Remainder gas ¹	% by volume	Quarterly
Probe Pressure	inches H ₂ O	Quarterly
Total halogenated VOCs by USEPA Method TO-15	µg/cm	Semi-annually

¹ Measurement of CO₂, O₂ and "remainder gas" may be postponed due to unavailability of gas measurement instrument during factory-calibration. Measurement of methane will be made by other instruments that may not allow measurement of CO₂, O₂ and "remainder gas".

Attachment B - Monitoring Well and Landfill Gas Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation work plan shall contain the following minimum information:

A. General Information:

- Purpose of the well installation project
- Brief description of local geologic and hydrogeologic conditions
- Proposed monitoring well locations and rationale for well locations
- Topographic map showing facility location, roads, and surface water bodies
- Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:

- On-site supervision of drilling and well installation activities
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):

- Diagram of proposed well construction details
 - Borehole diameter
 - Casing and screen material, diameter, and centralizer spacing (if needed)
 - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
 - Anticipated depth of well, length of well casing, and length and position of perforated interval
 - Thickness, position and composition of surface seal, sanitary seal, and sand pack
 - Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):

- Method of development to be used (i.e., surge, bail, pump, etc.)
- Parameters to be monitored during development and record keeping technique
- Method of determining when development is complete
- Disposal of development water

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):

- Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
- Datum for survey measurements
- List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)

F. Schedule for Completion of Work

G. **Appendix: Groundwater Sampling and Analysis Plan (SAP)**

The Groundwater SAP shall be included as an appendix to the work plan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
 - General sampling techniques
 - Record keeping during sampling (include copies of record keeping logs to be used)
 - QA/QC samples
- Chain of Custody
- Sample handling and transport

Attachment C - Monitoring Well and Landfill Gas Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved work plan.

A. General Information:

Purpose of the well installation project

Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells

Number of monitoring wells installed and copies of County Well Construction Permits

Topographic map showing facility location, roads, surface water bodies

Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):

On-site supervision of drilling and well installation activities

Drilling contractor and driller's name

Description of drilling equipment and techniques

Equipment decontamination procedures

Soil sampling intervals and logging methods

Well boring log

- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):

Well construction diagram, including:

- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:

Date(s) and method of development

How well development completion was determined

Volume of water purged from well and method of development water disposal

Field notes from well development should be included in report

- F. Well Survey (survey the top rim of the well casing with the cap removed):
- Identify the coordinate system and datum for survey measurements
 - Describe the measuring points (i.e. ground surface, top of casing, etc.)
 - Present the well survey report data in a table
 - Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix